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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/730,200	12/05/2000	Jon Schmidt Kindred	899.036US1	7265

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EXAMINER	
GRIER, LAURA A	
ART UNIT	PAPER NUMBER
2644	

DATE MAILED: 12/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/730,200	KINDRED ET AL.	
	Examiner	Art Unit	
	Laura A Grier	2644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 August 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-43 and 45-59* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,6,11-14,16,17,21-23,28,36,43 and 50* is/are rejected.

7)☒ Claim(s) *2-5, 7-10,15, 18-20, 24-27, 29-35, 37-42, 44-49, and 51-59* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *8/16/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claim 11 is rejected under 35 U.S.C. 102(e) as being anticipated by Sigwanz et al. (herein, Sigwanz), U. S. Patent No. 6049617.

Regarding claim 11, Sigwanz disclose a gain control in digital hearing aids. Sigwanz's disclosure comprises a signal amplification circuit in a digital hearing aid comprising A/D converting for converting to a digital signal, which is amplified via the processes of the circuitry as a whole, which reads on an adjuster (figures 1 and 2 –col. 1 lines 34-47 and col. 3, lines 41-65), and the smoothing element (5) reads on a detector, therein.

3. Claim 21-23, 28, 36 and 50 is rejected under 35 U.S.C. 102(e) as being anticipated by Orban, U. S. Patent No. 6205225.

Regarding claims 21 and 50, Orban discloses modulation distortion cancellation with Hilbert transforms comprising inherent means of sampling an input signal (col. 3,

lines 1- 6); a level detector (80) and a thresholding means (110), a summing means and where the adjustment of the gain is provided, therein in respect to components and the the Hilbert transform (abstract, figures 1-2, col. 2, lines 52-67, col. 3, lines 7-13, col. 4, lines 6-10, col. 4, lines 45-62), which read a sampler, a detector, an adder and adjuster.

Regarding claim 22, Orban discloses everything claimed as applied above (see claim 21). Orban further discloses a low pass filter figures 1 and 2 - (90)– (col. 4, lines 6-10).

Regarding claim 23, Orban discloses everything claimed as applied above (see claim 21). Orban further discloses a delay figures 1 and 2 - (140), which reads on a digital delay.

Regarding claim 28, Orban discloses modulation distortion cancellation with Hilbert transforms (filters) comprising inherent means of sampling an input signal (col. 3, lines 1- 6); a level detector (80) and a thresholding means (110), a summing means and where the adjustment of the gain is provided, therein in respect to coupling of the components and the Hilbert transform (abstract, figures 1-2, col. 2, lines 52-67, col. 3, lines 7-13, col. 4, lines 6-10, col. 4, lines 45-62), which read a sampler, a detector, an adder and adjuster

Regarding claim 36, Orban discloses modulation distortion cancellation with Hilbert transforms (filters) comprising inherent means of sampling an input signal (col. 3, lines 1- 6); a low pass filter (90); a level detector (80) and a thresholding means (110), a summing means and where the adjustment of the gain is provided, therein in respect to coupling of the components and the Hilbert transform (abstract, figures 1-2, col. 2, lines

52-67, col. 3, lines 7-13, col. 4, lines 6-10, col. 4, lines 45-62), which read a filter, a sampler, a detector, an adder and adjuster.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dibachi et al. (herein, Dibachi), U. S. Patent No. 6173062 in view of Sigwanz.

Regarding claim 1, Dibachi disclose discloses a hearing aid with digital side modulation comprising a transducer (1) – col. 3, lines 14-16, which reads on a microphone; digital processing takes place via an A/D converter and other digital processing devices to implement a digital processor for inhibiting distortion from modulation in respect to sampling of the input signal – figure 2A, col. 5, lines 67-col. 6, lines 1-12, and col. 9, lines 15-22. However, Dibachi fails to disclose processing the input at a gain, and an adjuster for the gain of the input signal and smoothing an envelope signal of the input signal due to distortions (herein, gain control components), therein.

Regarding the gain components, in a similar field of endeavor, Sigwanz discloses automatic gain control on an input signal in respect to sampling/distortions, and

smoothing (5) an envelope signal – col. 1, lines 34-47 and col. 3, lines 41-65, and figures 1 and 2.

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of Dibachi by implement gain control components for the purpose of providing a distortion free hearing aid for improved performance.

Regarding claim 6, Dibachi disclose discloses a hearing aid with digital side modulation comprising digital processing devices to implement a means for inhibiting distortion from modulation in respect to sampling (60) of the input signal – figure 2A, col. 5, lines 67-col. 6, lines 1-12, and col. 9, lines 15-22. However, Dibachi fails to disclose adjusting the gain of the input signal and smoothing an envelope signal of the input signal due to distortions (herein, gain control components), therein.

Regarding the gain components, in a similar field of endeavor, Sigwanz discloses automatic gain control on an input signal in respect to sampling/distortions, and smoothing (5) an envelope signal – col. 1, lines 34-47 and col. 3, lines 41-65, and figures 1 and 2.

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of Dibachi by implement gain control components for the purpose of providing a distortion free hearing aid for improved performance.

6. **Claims 12 and 13** are rejected under 35 U.S.C. 103(a) as being unpatentable over Sigwanz in view of Holube et al.(Houlbe), U. S. Patent No.6198830.

Regarding **claim 12**, Sigwanz discloses everything claimed as applied above (see claim 11). However, Sigwanz fails to disclose a preamplfier.

Regarding the preamplifier, Holube discloses amplification input for a hearing aid. Holube's disclosure comprises a preamplifier (2) – col. 3, lines 40-41, which reads on a preamplifier.

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of Sigwanz by implementing a preamplifier for the purpose of amplifying an input signal prior to further processing.

Regarding **claim 13**, Sigwanz and Holube disclose everything claimed as applied above (see claim 12). Sigwanz further discloses an analog-to-digital converter (1).

7. **Claim 14 is** rejected under 35 U.S.C. 103(a) as being unpatentable over Sigwanz and Holube, further in view of Williamson.

Regarding claim 14, Sigwanz and Holube discloses everything claimed as applied above (see claim 13). However, Sigwanz and Holube fail to disclose a filter receiving a digitized signal and provides a filtered signal that excludes a direct current component of the digital signal.

Regarding the filter, in a similar field of endeavor, Williamson discloses hearing aids with digital signal processing comprising a digital conversion, wherein the digital signal is applied to a filer, which filters out DC components (col. 5, lines 30-36), which reads on a filter.

It would have been obvious to one of the ordinary skill in the art the time the invention was made to modify the invention of Sigwanz and Holube by implementing a filter following a digital conversion for the purpose of filtering out DC components and getting rid of DC offsets that may exist in the data of the signal as taught by Williamson.

8. **Claim 16** is rejected under 35 U.S.C. 103(a) as being unpatentable over Dibachi and Sigwanz in view of Holube.

Regarding **claim 16**, Dibachi disclose discloses a hearing aid with digital side modulation comprising digital processing devices to implement a for inhibiting distortion from modulation in respect to sampling (60) of the input signal – figure 2A, col. 5, lines 67-col. 6, lines 1-12, and col. 9, lines 15-22. However, Dibachi fails to disclose adjusting the gain of the input signal (adjuster) and smoothing an envelope signal of the input signal due to distortions (herein, gain control components), therein.

Regarding the gain components, in a similar field of endeavor, Sigwanz discloses automatic gain control on an input signal in respect to sampling/distortions, and rectifier ((2), smoothing (5) an envelope signal – col. 1, lines 34-47 and col. 3, lines 41-65, and figures 1 and 2.

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of Dibachi by implement gain control components for the purpose of providing a distortion free hearing aid for improved performance.

Further, Dibachi and Sigwanz fails to disclose a preamplfier.

Regarding the preamplifier, Holube discloses amplification input for a hearing aid. Holube's disclosure comprises a preamplifier (2) – col. 3, lines 40-41, which reads on a preamplifier.

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of Dibachi and Sigwanz by implementing a preamplifier for the purpose of amplifying an input signal prior to further processing.

9. **Claim 17** is rejected under 35 U.S.C. 103(a) as being unpatentable over Dibachi, and Sigwanz and Holube in view of Williamson.

Regarding claim 17, Diabachi and Sigwanz and Holube discloses everything claimed as applied (see claim 16). However, they do not disclose a filter receiving a digitized signal and provides a filtered signal that excludes a direct current component of the digital signal.

Regarding the filter, in a similar field of endeavor, Williamson discloses hearing aids with digital signal processing comprising a digital conversion, wherein the digital signal is applied to a filer, which filters out DC components (col. 5, lines 30-36), which reads on a filter.

It would have been obvious to one of the ordinary skill in the art the time the invention was made to modify the invention of Dibachi, Sigwanz and Holube by implementing a filter following a digital conversion for the purpose of filtering out DC components and getting rid of DC offsets that may exist in the data of the signal as taught by Williamson.

10. **Claim 43** is rejected under 35 U.S.C. 103(a) as being unpatentable over Orban.

Regarding claim 43, Orban discloses modulation distortion cancellation with Hilbert transforms (filters) comprising inherent means of sampling an input signal (col. 3, lines 1- 6); a low pass filter (90); a level detector (80) and a thresholding means (110), a summing means and where the adjustment of the gain is provided, therein in respect to coupling of the components and the Hilbert transform (abstract, figures 1-2, col. 2, lines 52-67, col. 3, lines 7-13, col. 4, lines 6-10, col. 4, lines 45-62), which read a filter, a sampler, a detector, an adder and adjuster. However, Orban fails to disclose the use of IIR filter in Hilbert configuration. The examiner takes official notice that IIR filters in a Hilbert configuration were well known in the art.

Thus, it would have been obvious to one of the ordinary skill in the art the time the invention was made to modify the invention of Orban by implementing IIR filters for the Hilbert Transform for the purpose an enabling the convenience of recursive filters.

11. Claims 2-5, 7-10, 15, , 18-20, 24-27, 29-35, 37-42, 45-49, 51-59 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

12. Applicant's arguments with respect to claims 1-43,45-59 have been considered but are moot in view of the new ground(s) of rejection.

The applicant essentials argues all claims in respect to Flanagan (a primary reference of prior art), wherein Flanagan fails to disclose inhibiting distortion caused by modulation due to a sampling an input signal. New reference of prior art have been provided that specifically focuses on canceling or reducing distortion that arise from modulation of a signal in respect to being sampled, and as well teaches gain control of the signal as well, and use the Hilbert transformation. Thus the Flanagan reference has been not maintained.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura A Grier whose telephone number is (703) 306-4819. The examiner can normally be reached on Monday - Friday, 7:30 am - 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester W. Isen can be reached on (703) 305-4386. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Laura A. Grier
December 20, 2004